

## REMARKS

Claims 1 – 11, 13 – 24, 27 – 32 and 43 – 48 are pending in this application. Claims 12, 25, 26 and 33 – 42 have been cancelled and claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 16, 19, 20, 21, 22, 23, 24, 27, 28, 29, 31, 32, 43, 44, 45 and 46 have been amended. No new matter was added. The allowability of claim 9 is hereby acknowledged. In view of the foregoing amendments and following remarks, reconsideration of the application is respectfully requested.

Applicant's attorney would like to thank Examiner Nicholas Lucchesi for the courtesies extended in granting the interview on September 19, 2005. In the interview, the Seal, Hansen, Carlsson and Names references were discussed. Amendments to the claims were proposed to overcome the rejections. Applicants suggested the insertion of the word "prosthesis" into the claim to define over the art of record. It was agreed that Applicants' attorney would file amendments to overcome the rejections to the claims.

Claims 1-4, 12, 16, 17, 26, 27, 29, 30, 32, 45, 46, 47 and 48 were rejected under 35 U.S.C. 102(b) as being anticipated by Seal (U.S. Patent No. 5,052,929). It is the Examiner's opinion that Seal discloses a cylinder 16 designed to retain a structural framework material for an implant system, comprising a substantially cylindrical body 21 and one or more shelves (grooves) 18, 21 having at least two sides disposed on a surface of the body. With regard to claims 2, 3, 16, 27, 32, 45 and 46, the Examiner notes vertical groove 21 located on a proximal surface and horizontal grooves 18 located on facial and lingual sides of the body. With regard to claim 4, the Examiner cites opening 22 extending vertically through the body. With regard to claims 17 and 47 the Examiner states that Seal '929 discloses that the cylinders may be used with implants. For the reasons set forth below, the rejections are respectfully traversed.

The claimed invention is directed to an implant system having a prosthesis with a structural framework material, composite material, or ceramic material and having one or more cylinders, wherein the cylinder has a substantially cylindrical body, wherein the cylindrical body includes one or more shelves disposed on a surface of the substantially cylindrical body, wherein the shelves comprise one or more grooves having at least two sides. The cylinder may include a cantilever extending from the cylindrical body if it is to be used at the end of a row of cylinders for an implant system. Moreover, the cylinder

may include a series of nodules, holes or beads disposed on a surface of the cylindrical body. The cylinders of the invention are an integral component of the actual implant system.

Seal '929 is directed to a transfer abutment that is placed in a patient's mouth, after which a dentist will take an impression. The impression is removed from the mouth as well as the abutment. The abutment is then used to create a customized abutment, by waxing, machining, or a combination of both procedures. Typically, the abutment body is modified to provide a custom abutment having an angled or modified body. In fact, the depressions, shelves, flat dimensions, etc. may be obliterated. This is completely unlike the prosthesis of the claimed invention having a cylinder that includes shelves for placement of a framework material thereon. Seal '929 is not directed to a cylinder that is part of a prosthesis, but is directed to an abutment, which is not part of the prosthesis. As stated in Seal '929, the abutment is not part of the prosthesis, but attaches the prosthesis to the dental implant. The claimed invention is not anticipated or rendered obvious by the cited reference.

Claim 43 was rejected under 35 U.S.C. 102(b) as being anticipated by Hansen (U.S. Patent No. 5,427,906). It is the Examiner's opinion that Hansen '906 discloses a cylinder comprising a cylindrical body, a groove 39 having two sides, and a cantilever 12 extending from the body. For the reasons set forth below, the rejections are respectfully traversed.

Hansen '906 is directed to a system for bracing dental implants or natural tooth roots to secure artificial teeth. The implant heads 30 do not act as cylinders; they act as abutments that are attached to bars 12, which further attach to the denture prosthesis 13. The components of Hansen '906 are more similar to the abutment component in Seal '929. Neither Seal '929 nor Hansen '906 teach the component as being part of the prosthesis. As stated above, the cylinder of the claimed invention is a completely different element in the implant system of the claimed invention. It is an integral part of the prosthesis, which entire prosthesis attaches to the abutment components of the implant system. The claimed invention is not anticipated or rendered obvious by the cited reference.

Claims 1, 19 and 44 were rejected under 35 U.S.C. 102(b) as being anticipated by Carlsson et al. (U.S. Patent No. 5,125,841). It is the Examiner's opinion that Carlsson '841 discloses a cylinder 1 having grooves therein (the spaces between portions 6). The Examiner notes that Carlsson '841 discloses that the cylinder may be formed of a plastic material and with respect to claim 44, the Examiner notes nodules 6 are formed on the body. For the reasons set forth below, the rejections are respectfully traversed.

Carlsson '841 is directed to "impression tops" used in the manufacture of a working plaster model for an implant system. More specifically, the "impression tops" act as a transfer device used for recording the orientation of a dental implant or "spacer element" (commonly known as an abutment) which orientation is needed to fabricate a working plaster model for an implant case. The "impression tops" are used to align analogs or the "spacer elements" in the working model that correspond to the locations of the implants in the mouth. As the claims in Carlsson '841 state, the invention is directed to a device for transferring the direction and position of a dental implant or its extension member to a working plaster model.

In preparing an implant system, the first step involves inserting implant screws into the jawbone of the patient's mouth. After a period of healing time, such as, about 3 to 6 months, the prostheses may be prepared for adaptation to the implant screws in the mouth. This involves taking an impression of the patient's jaw and fabricating a plaster model of the patient's jaw. Carlsson '841 is directed to this step of the process. In order to prepare a prosthesis which will correspond to the location of the implant screws positioned in the patient's mouth, "impression tops" (more commonly known as transfer devices) are inserted into the screws or "spacer elements" located in the patient's mouth. Thereafter, an impression of the patient's jaw is taken. The (transfer devices) impression tops (which extend into the impression material) of Carlson '841 are picked up in the impression. Analog "spacer elements" are placed in the new empty "impression tops." Thereafter, a plaster working model is prepared from the impression carrying the impression tops (transfer device) with analog "spacer elements" therein. A plaster working model with the properly positioned analog "spacer elements" is thus obtained. At this point, "impression tops" are no longer necessary. The analog spacer elements

remain in the working model, which is then used to prepare the prosthesis which will be inserted into the implant screws.

The components of Carlsson '841 are more similar to the components in Seal '929 than to the cylinders in the claimed invention. As stated above, the claimed invention is directed to an implant system having a prosthesis that comprises cylinders, which cylinders are the foundation of the structural framework or other material that is applied onto the cylinders. Carlsson '841 does not teach a cylinder as being an integral part of the prosthesis. The claimed invention is not anticipated or rendered obvious by the cited reference.

Claims 5, 6, 7, 8, 10, 11, 13, 14, 15, 18, 20, 21, 22, 23, 24, 25, 28, 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Seal '929 in view of Names (U.S. Patent No. 6,056,547). It is the Examiner's opinion that Seal '929 discloses the cylinder and implant system as claimed in these claims, but fails to disclose the composite material held by the cylinders to be a fiber reinforced composite material. The Examiner cites Names '547 to show an abutment system used to retain a framework for a prosthesis, which framework retains a fiber-reinforced composite material. The Examiner concludes that it would have been obvious to one skilled in the art to use a fiber reinforced composite material with the cylinder and implant system of Seal '929, as disclosed by Names '547.

As stated above, Seal '929 is directed to a transfer abutment, not a cylinder. The abutment of Seal '929 is not part of the prosthesis as is the cylinder of the applicants' invention. Names '547 does not cure the deficiencies of Seal '929. Names '547 is directed to an implant system comprising a framework and a prosthesis wherein the framework comprises foundation elements 10 used as components in the final restoration. The foundation elements in Names '547 contain seats 23 to support the prosthesis formed around the framework in the final restoration. The elements in Names '547 also include an elongated member 14, which is used for receiving prosthetic material for molding or sculpting prosthetic teeth onto foundation elements 10. Names '547 states that it is possible to sever elongated member 14 from base member 12a and reattach elongated member 14 via a compatible luting composite to base member 12 such that elongated member 14 is closer to seat 23 so that elongated member 14 rests upon seat 23.

Although Names '547 shows the use of elongated member 14 and seat 23 on foundation elements 23 to form a framework, Names '547 is not concerned with the wrapping of material around the foundation elements to form a framework. Names '547 does not take into consideration the problems associated with trying to retain material on the framework. In fact, Names '547 teaches away from retention by teaching merely luting member 14 to base member 12. There is no indication to "retain" material on the foundation elements.

The inventors herein have discovered that luting between the components (foundation elements), as disclosed by Names '547 does not provide a strong, integral framework. Merely luting one component to another does not provide a good bond between the components. The inventors herein conceived and developed cylinders for an implant system whereby the cylinders serve as the foundation for the framework. The cylinders of the instant application have grooves, which retain the fiber reinforced composite (frc) framework. The grooves, which have at least two sides, actually retain the components that form the framework. The vertical grooves, denoted by 14 in the figures, have a bottom, left and right side. A bar may be placed in the groove. The bottom side supports the bar and the left and right sides retain the groove in place. The horizontal grooves, denoted by 16 in the figures, have bottom and top sides. These horizontal grooves retain the frc material as it is wrapped around the cylinders, preventing it from moving (up or down) off the cylinder. The ability of the cylinders to retain the frc materials thereon result in a strong, framework having high fracture toughness.

Names '547 does not show, suggest or teach the use of grooves to retain framework material thereon. Seat or shelf 23 in Names '547 is merely a ledge that may support framework material, but will not retain framework material. The sides in the grooves of the instant invention retain the framework material on the cylinders. Similarly, elongated member 14 of Names '547 is a cantilever which does not include grooves thereon. There is nothing on elongated member 14 that would retain material. The claims are not anticipated by Seal '929 in view of Names '547.

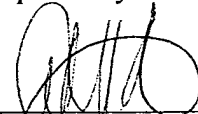
Claim 44 was rejected under 35 U.S.C. 102(b) as being clearly anticipated by Klardie, U.S. Patent No. 5,782,918. For the reasons set forth below, the rejections are respectfully traversed.

In summary, none of the cited references teach an implant system having a prosthesis with a structural framework material, composite material, or ceramic material and having one or more cylinders, wherein the cylinder has a substantially cylindrical body, wherein the cylindrical body includes one or more shelves disposed on a surface of the substantially cylindrical body, wherein the shelves comprise one or more grooves having at least two sides. The cylinder may include a cantilever extending from the cylindrical body if it is to be used at the end of a row of cylinders for an implant system. Moreover, the cylinder may include a series of nodules, holes or beads disposed on a surface of the cylindrical body. The cylinders of the invention are an integral component of the actual implant system.

Accordingly, it is believed that claims 1 – 11, 13 – 24, 27 – 32 and 43 – 48 specify patentable subject matter and are now in condition for allowance. Applicants therefore respectfully request favorable reconsideration and allowance of this application. The Examiner is requested to telephone applicants' attorney at the number listed below if it will advance the prosecution of this case. If necessary, the Examiner is authorized to charge further fees necessary to advance the prosecution in this case from Deposit Account No. 500718.

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Respectfully submitted,



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